Changes Proposed to 3013-99

Criterion 6.2.4.2 (page 8) currently reads: "*The outer container and the exterior surface of the inner container shall not, at the time of assembly and closure of the outer container, exceed the removable surface contamination values specified by 10 CFR 835, Appendix D.*"

Proposed new language: *The exterior surface of the outer container shall not, at the time of assembly and closure, exceed the removable surface contamination values specified by 10 CFR 835, Appendix D. The removable surface contamination level on the exterior surface of the inner container, at the time of its packaging into the outer container, shall be as low as reasonably achievable, and shall not exceed 2000 dpm/100 cm^2. In the event the inner container is to be placed in short-term storage in a contamination-free area, pending final packaging into the outer container, the removable exterior surface contamination shall not exceed the values specified by 10 CFR 835, Appendix D.*

Appendix A, Section 6.2.4.2 (page 37) currently reads:

"The outer container will be placed in and moved through contamination-free areas. It is important that the container not compromise the contamination-free nature of those areas. Further, the outer container, when open prior to filling or loading, should still be capable of placement in, or transport through contamination-free areas.

"The inner container is the primary barrier to release of radioactive materials. To ascertain that this goal has been accomplished, the outer surface of the inner container must be contamination-free at the time that the loaded inner container is placed into the outer container."

Proposed new language:

The outer container will be placed in and moved through contamination-free areas. It is important that the container not compromise the contamination-free nature of those areas. Further, the outer container, when open prior to filling or loading, should still be capable of placement in, or transport through contamination-free areas.

The inner container is the primary barrier to release of radioactive materials. To ascertain that this goal has been accomplished, the container is tested to confirm that it is leak-tight. Removable contamination should be minimized, within the bounds of ALARA principles, but should not exceed 2000 dpm/100 cm^2, which is the threshold between a "contamination area" and a "high contamination area."

In earlier versions of this Standard, there was a requirement that, at the time of closure of the outer container, the exterior surface of the inner container be contamination-free, as defined in Appendix D to 10 CFR 835. That requirement has now been removed and replaced with the requirement stated above. The reasons for the change are as follows:

- *Once the outer container has been sealed, there is no way to determine whether the inner container is contaminated or not. On opening the outer container, the assumption must be made that the exterior of the inner container is contaminated. Thus, a contamination-free inner container provides no benefit after the outer container is closed.*
- *NN-60 (MD) facilities are designed to open the outer container inside a hood and presume that the inner container outer surface has removable contamination up to 2000 dpm/100 cm^2.*
- *The SRS K Reactor Authorization Basis for storage of 3013 containers in 9975 transport packages allows for removable contamination levels of up to 2000 dpm/100 cm^2 on the outer surface of the inner container.*
- *In the past, the absence of contamination was sometimes viewed as confirmation that the inner container was adequately sealed. However, that is now accomplished by a leak test.*

- *Contamination levels up to 2000 dpm/100 cm^2 do not pose a significant health threat in this application.*
- *Contamination levels up to 2000 dpm/100 cm^2 do not limit disposal of the outer, which could become contaminated by contacting the inner, as low level waste.*
- *Originally (in DOE-STD-3013-94), the packaging concept was that the package would be acceptable for both storage and transportation. It considered the plutonium-bearing materials to be placed into a "boundary container" and that packaged into a "primary containment vessel." The boundary container was required to withstand 150% of the "worst case" internal pressure. The primary containment vessel was expected to pass the same pressure test, all the DOT tests (various drop tests, a crush test, etc.) and to be reusable. The current concept of the 3013 package, which is only for storage, uses the boundary container as the outer container and has added a pressure indicating inner container. The outer container is not expected to be reused. In short, although the packaging concept has changed dramatically, the criteria regarding removable contamination did not change to reflect the different role that the inner container now fulfills.*

In summary, then, allowing a slightly contaminated inner container does not sacrifice any benefits, does not pose any new problems, and does allow correction of an anachronism in the current criteria.

Note that the process concept underlying this Standard is that the inner container is placed in the outer container essentially immediately after the inner container is sealed, and is always in a "contamination area." However, it is possible that the process might be segmented, and the plutonium-bearing materials placed in short-term storage in the inner container in a contamination-free area (such as a vault) before being packaged into the outer container. In that event, the requirement for a "contamination free" exterior surface must be applied.